



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,983	10/02/2003	Grigoriy Grinberg	CS-21369	7792

27182 7590 11/30/2005
PRAXAIR, INC.
LAW DEPARTMENT - M1 557
39 OLD RIDGEBURY ROAD
DANBURY, CT 06810-5113

EXAMINER

JACKSON, MONIQUE R

ART UNIT PAPER NUMBER

1773

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/675,983

Applicant(s)

GRINBERG ET AL.

Examiner

Monique R. Jackson

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 9/9/05 has been entered. New claims 22-24 have been added.

Claims 1-24 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milovich et al (USPN 5,073,589) in view of Carbone et al (USPN 5,296,183.) Milovich et al teach a method of producing a metal-faced composite tool comprising providing a desired master pattern surface or mold in a desired shape, coating a thin layer of parting or release agent thereto such as polyvinylacetate, polyvinylchloride and paraffin wax; thermal spraying a hot metal such as tin, zinc, aluminum and steel alloys onto the release agent to form a metal shell 15; coating the metal shell with a fiber reinforced resinous paste mixture that forms an adhesive layer 16 to the metal shell 15 and to a backing 17 comprising a mix of resin and fiber fillers to produce the tool under compression pressure (Col. 4, lines 10-68; Col. 5, lines 23-31.) The tool is then separated from the pattern surface or mold with the assistance of the parting or release agent (Col. 4, lines 51-52; Examples.) Milovich et al teach examples utilizing aluminum fibers and carbon fibers with epoxy resin as in instant claim 7 (Examples 2 and 3.) Milovich et al further teach that the metal is sprayed to a thickness of between 0.030 and 0.250 inches (Col. 5, lines 17-20.) Though Milovich et al produce several composite backed tools utilizing the same pattern, Milovich et al do not specifically teach cleaning the pattern of contaminants between examples, however it is well established in the art that a cleaning step is advantageous between molding operations to

Art Unit: 1773

remove any debris, contaminants or excess release agent between runs to provide a clean pattern for replication of the subsequent tool or molded article and would have been obvious to one having ordinary skill in the art at the time of the invention. In terms of the porosity and theoretical density of the thermally sprayed layer, Milovich et al do not specifically teach the instantly claimed values or that the thermal spraying parameters are adjusted such that an inner dense layer is formed first followed by an outer porous layer as instantly claimed. However, Carbone et al teach that thermal spraying, in conjunction with producing a molded composite article with a fiber reinforced base or backing, has the advantage that it can provide a smooth outer surface while providing a fairly rough and porous bonding surface for resin infiltration by adjusting the thermal spray parameters (Col. 2, line 61-Col. 3, line 14; Claim 9.) Hence, though Milovich et al and Carbone et al do not specifically teach the porosity and density as instantly claimed or the thickness of the “porous” portion with respect to the “dense” portion, one having ordinary skill in the art at the time of the invention would have been motivated to adjust the thermal spray parameters to provide a smooth outer surface and fairly rough, inner porous bonding surface as taught by Carbone et al, utilizing routine experimentation to determine the desired density/porosity gradient to provide the desired bonding surface to facilitate resin infiltration and bonding for a particular end use.

Response to Arguments

4. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 1773

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Monique R. Jackson
Primary Examiner
Technology Center 1700
November 28, 2005